

**FEATURES**

- 3.3V power supply
- Useful as either 4:1 or 2:1 multiplexer
- VBB output for single-ended operation
- 75KΩ internal input pulldown resistors
- Available in 150 mil 16-pin SOIC package

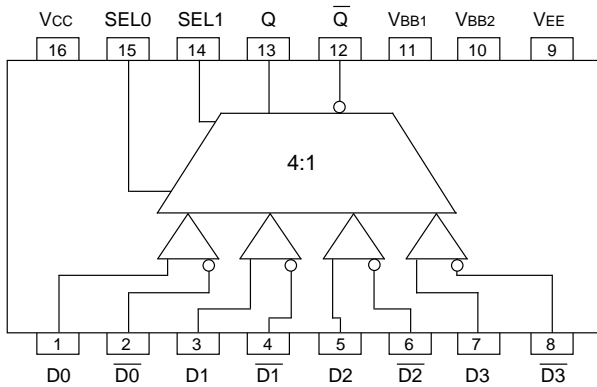
**DESCRIPTION**

The SY100EL57L is a full differential 4:1 multiplexer. By leaving the SEL1 line open (pulled LOW via the input pulldown resistors) the device can also be used as a differential 2:1 multiplexer with SEL0 input selecting between D0 and D1. The fully differential architecture of the EL57L makes it ideal for use in low skew applications such as clock distribution.

The SEL1 is the most significant select line. The binary number applied to the select inputs will select the same numbered data input (i.e., 00 selects D0).

Multiple VBB outputs are provided for single-ended or AC coupled interfaces. In these scenarios, the VBB output should be connected to the data bar inputs and bypassed via a 0.01μF capacitor to ground. Note that the VBB output can source/sink up to 0.5mA of current without upsetting the voltage level.

**PIN CONFIGURATION/BLOCK DIAGRAM**



**SOIC  
TOP VIEW**

**TRUTH TABLE**

SEL1	SEL0	DATA OUT
L	L	D0
L	H	D1
H	L	D2
H	H	D3

**PIN NAMES**

Pin	Function
D0-3	Differential Data Inputs
SEL0, 1	Mux Select Inputs
VBB1, 2	Reference Outputs
Q	Data Outputs

**ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup>**

Symbol	Rating	Value	Unit
VEE	Power Supply (V <sub>CC</sub> = 0V)	-7.0 to 0	V
V <sub>I</sub>	Input Voltage (V <sub>CC</sub> = 0V)	0 to -4.3	V
I <sub>OUT</sub>	Output Current - Continuous - Surge	50 100	mA
T <sub>A</sub>	Operating Temperature Range	-40 to +85	°C
VEE	Operating Range <sup>(1,2)</sup>	-4.0 to -3.0	V

**NOTES:**

1. ABSOLUTE MAXIMUM RATINGS, beyond which, device life may be impaired, unless otherwise specified on an individual data sheet.
2. Parametric values specified at: Power Supply Range 100EL57L Series: -3.0V to -3.8V.

**100EL DC CHARACTERISTICS**

V<sub>EE</sub> = V<sub>EE</sub> (Min) - V<sub>EE</sub> (Max); V<sub>CC</sub> = GND<sup>(1)</sup>

Symbol	Parameter	T <sub>A</sub> = -40°C			T <sub>A</sub> = 0°C to 85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.		
V <sub>OH</sub>	Output HIGH Voltage	-1085	-1005	-880	-1025	-955	-880	mV	V <sub>IN</sub> = V <sub>IH</sub> (Max) or V <sub>IL</sub> (Min)
V <sub>OL</sub>	Output LOW Voltage	-1830	-1695	-1555	-1810	-1705	-1620	mV	V <sub>IN</sub> = V <sub>IH</sub> (Max) or V <sub>IL</sub> (Min)
V <sub>OHA</sub>	Output HIGH Voltage	-1095	—	—	-1035	—	—	mV	V <sub>IN</sub> = V <sub>IH</sub> (Min) or V <sub>IL</sub> (Max)
V <sub>OLA</sub>	Output LOW Voltage	—	—	-1555	—	—	-1610	mV	V <sub>IN</sub> = V <sub>IH</sub> (Min) or V <sub>IL</sub> (Max)
V <sub>IH</sub>	Input HIGH Voltage	-1165	—	-880	-1165	—	-880	mV	
V <sub>IL</sub>	Input LOW Voltage	-1810	—	-1475	-1810	—	-1475	mV	
I <sub>IL</sub>	Input LOW Current	0.5	—	—	0.5	—	—	μA	V <sub>IN</sub> = V <sub>IL</sub> (Max)

**NOTE:**

1. Outputs are terminated through a 50Ω resistor to -2.0V except where otherwise specified on the individual data sheets.

**DC ELECTRICAL CHARACTERISTICS**

V<sub>EE</sub> = V<sub>EE</sub> (Min) - V<sub>EE</sub> (Max); V<sub>CC</sub> = GND

Symbol	Parameter	T <sub>A</sub> = -40°C			T <sub>A</sub> = 0°C			T <sub>A</sub> = +25°C			T <sub>A</sub> = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
I <sub>EE</sub>	Power Supply Current	—	-15	-24	—	-15	-24	—	-15	-24	—	-15	-27	mA
V <sub>BB</sub>	Output Reference Voltage	-1.38	—	-1.26	-1.38	—	-1.26	-1.38	—	-1.26	-1.38	—	-1.26	V
I <sub>IH</sub>	Input HIGH Current	—	—	150	—	—	150	—	—	150	—	—	150	μA

**AC ELECTRICAL CHARACTERISTICS**

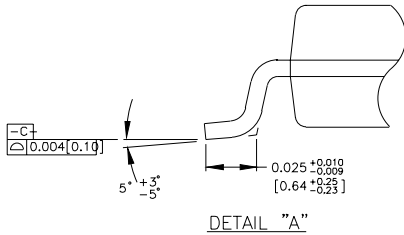
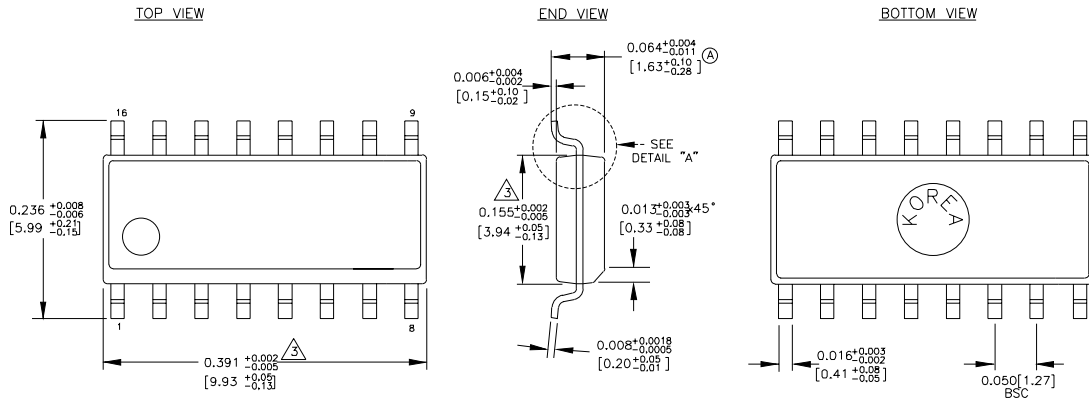
VEE = VEE (Min) - VEE (Max); VCC = GND

Symbol	Parameter	TA = -40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
tPLH tPHL	Propagation Delay DATA to Q/Q SEL to Q/Q350	350 —	— 600	550 350	350 —	— 600	550 350	360 —	— 610	560 380	380 —	— 630	580	ps
t <sub>skew</sub>	Input Skew DATA to Q	—	—	50	—	—	50	—	—	50	—	—	50	ps
V <sub>PP</sub>	Minimum Input Swing DATA	150	—	—	150	—	—	150	—	—	150	—	—	mV
V <sub>CMR</sub>	Common Mode Range DATA	-2.0	—	-0.4	-2.0	—	-0.4	-2.0	—	-0.4	-2.0	—	-0.4	V
t <sub>r</sub> t <sub>f</sub>	Output Rise/Fall Times Q (20% - 80%)	125	—	575	125	—	520	125	—	520	125	—	520	ps

**PRODUCT ORDERING CODE**

Ordering Code	Package Type	Operating Range
SY100EL57LZC	Z16-2	Commercial
SY100EL57LZCTR	Z16-2	Commercial

**16 LEAD SOIC .150" WIDE (Z16-2)**



**NOTES:**  
 1. DIMENSIONS ARE IN INCHES[MM].  
 2. CONTROLLING DIMENSION: INCHES.  
 3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.006[0.15] PER SIDE.

Rev. 02

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